

Amendment and Response to First Office Action  
Client Docket No. D/99176  
Attorney Docket No. 022.0318.US.UTL

Listing of Claims:

1        1. (Amended) A method for authenticating a hardcopy document,  
2 comprising the steps of:  
3            recording in a memory a scanned representation of the hardcopy document  
4 at a selected resolution;  
5            generating lossy compressed image data with the scanned representation  
6 of the hardcopy document;  
7            producing an authentication token with the lossy compressed image data;  
8 the authentication token including one of encrypted image data and hashed  
9 encrypted image data; the hashed encrypted image data including the lossy  
10 compressed image data and an encrypted hash of the lossy compressed image  
11 data; and  
12           arranging in the memory the scanned representation of the hardcopy  
13 document with a digital encoding of the authentication [data] token for rendering  
14 at a printer a signed and authenticated hardcopy document.

1        2. (Original) The method according to claim 1, further comprising the  
2 step of verifying the signed hardcopy document by:  
3            recording a scanned representation of the signed hardcopy document;  
4            decoding the authentication token from the scanned representation of the  
5 signed hardcopy document;  
6            authenticating the lossy compressed image data using one of the encrypted  
7 image data and the hashed encrypted image data; and  
8            decompressing the authenticated lossy compressed image data for  
9 comparison with the signed hardcopy document to determine whether the signed  
10 hardcopy document is authentic.

1        3. (Original) The method according to claim 2, further comprising the  
2 step of visually comparing the signed hardcopy document with the authenticated  
3 lossy compressed image data.

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1           4. (Original) The method according to claim 2, further comprising the  
2 step of visually comparing the signed hardcopy document with a printed hardcopy  
3 document of the authenticated lossy compressed image data.

1           5. (Original) The method according to claim 2, wherein said step of  
2 producing an authentication token is performed with a private key and said step of  
3 authenticating lossy compressed image data is performed with a public key.

1           6. (Original) The method according to claim 1, further comprising the  
2 step of encoding the authentication token in a low intensity background pattern.

1           7. (Original) The method according to claim 1, further comprising the  
2 step of encoding the authentication token in embedded data.

1           8. (Original) The method according to claim 7, wherein said encoding  
2 step encodes the authentication token in a halftone pattern.

1           9. (Original) The method according to claim 8, wherein said encoding  
2 step encodes the authentication token in a hyperbolic halftone pattern.

1           10. (Original) The method according to claim 8, wherein said encoding  
2 step encodes the authentication token in a serpentine halftone pattern.

1           11. (Original) The method according to claim 7, wherein said encoding  
2 step encodes the authentication token in data glyphs.

1           12. (Original) The method according to claim 1, wherein said step of  
2 generating lossy compressed image data loses document formatting contained in  
3 the scanned representation of the hardcopy document.

1           13. (Original) The method according to claim 12, wherein said step of  
2 generating lossy compressed image data further comprises the step of  
3 compressing the scanned representation of the hardcopy document by identifying

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4 exemplars and locations of exemplars; each exemplar identified representing one  
5 or more image segments from the scanned representation of the hardcopy  
6 document.

1 14. (Original) The method according to claim 13, wherein said  
2 compressing step records the exemplars at a resolution that is less than the  
3 selected resolution of the scanned representation of the hardcopy document.

1 15. (Original) The method according to claim 13, wherein said  
2 compressing step records that locations of exemplars at a resolution that is less  
3 than the selected resolution of the scanned representation of the hardcopy  
4 document.

1 16. (Original) The method according to claim 1, wherein said  
2 compressing step compresses identified portions of the image data at a plurality of  
3 compression ratios.

1 17. (Original) The method according to claim 16, further comprising  
2 the step of segmenting text data from pictorial data before compressing the  
3 scanned representation of the hardcopy document.

1 18. (Original) A method for authenticating a hardcopy document,  
2 comprising the steps of:  
3 recording in a memory a scanned representation of the hardcopy document  
4 at a selected resolution;  
5 lossy compressed image data with the scanned representation of the  
6 hardcopy document;  
7 producing an authentication token with the lossy compressed image data;  
8 the authentication token including one of encrypted image data and hashed  
9 encrypted image data; the hashed encrypted image data including the lossy  
10 compressed image data and an encrypted hash of the lossy compressed image  
11 data; and

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12                   arranging in the memory a digital encoding of the authentication data for  
13                   rendering at a printer a label containing the digital encoding of the authentication  
14                   data.

1                   19.       (Original) The method according to claim 18, further comprising  
2                   the step of fixedly attaching the label to the hardcopy document to produce a  
3                   signed hardcopy document.

1                   20.       (Original) The method according to claim 19, further comprising  
2                   the step of verifying the signed hardcopy document by:  
3                   recording a scanned representation of the signed hardcopy document;  
4                   decoding the authentication token from the scanned representation of the  
5                   signed hardcopy document;  
6                   authenticating the lossy compressed image data using one of the encrypted  
7                   image data and the hashed encrypted image data; and  
8                   decompressing the authenticated lossy compressed image data for  
9                   comparison with the signed hardcopy document to determine whether the signed  
10                   hardcopy document is authentic.

1                   21.       (Amended) A system for authenticating a scanned representation  
2                   of a hardcopy document, comprising:  
3                   an image compression module for generating lossy compressed image data  
4                   with the scanned representation of the hardcopy document;  
5                   an authentication token generator for producing an authentication token  
6                   with the lossy compressed image data; the authentication token including one of  
7                   encrypted image data and hashed encrypted image data; the hashed encrypted  
8                   image data including the lossy compressed image data and an encrypted hash of  
9                   the lossy compressed image data; and  
10                   an encoding module for arranging the scanned representation of the  
11                   hardcopy document with a digital encoding of the authentication [data] token for  
12                   rendering at a printer a signed and authenticated hardcopy document.

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1           22. (Amended) The system according to Claim [18] 21, further  
2 comprising:  
3           a memory for recording the signed hardcopy document;  
4           a decoding module for decoding the signed hardcopy document to define  
5        decoded signed image data;  
6           an authentication module to authenticating the decided signed image data  
7        using of the encrypted image data and the hashed encrypted image data to define  
8        authenticated image data; and  
9           a decompression module for decompressing the authenticated image data  
10       to define decompressed image data;  
11           means for comparing the signed hardcopy document with the  
12        authenticated hardcopy document to determine whether the signed hardcopy  
13        document is authentic.

1           23. (Amended) The system according to Claim [18] 21, wherein said  
2 image compression module compresses the scanned representation of the  
3 hardcopy document by identifying exemplars and locations of exemplars; each  
4 exemplar identified representing one or more image segments from the scanned  
5 representation of the hardcopy document.